

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently amended) A method for generating spatialized audio
2 from non-three-dimensionally aware applications, comprising:
3 intercepting parameters associated with audio use from an application,
4 wherein the application does not include support for three-dimensional sound;
5 using the intercepted parameters to obtain location information of a
6 display window associated with the application within a three-dimensional
7 display;
8 calculating an audio source location for the audio; and
9 positioning the audio at the audio source location in a three-dimensional
10 sound space, wherein the audio source location is associated with a location of the
11 display window in the three-dimensional display.

- 1 2. (Original) The method of claim 1, wherein intercepting
2 information about audio use involves intercepting an audio stream from the
3 application.

- 1 3. (Original) The method of claim 1, wherein intercepting
2 information about audio use involves intercepting parameters associated with an
3 audio stream from the application.

1 4. (Original) The method of claim 1, wherein obtaining location
2 information of the display window associated with the application involves
3 determining a set of coordinates on the three-dimensional display where the
4 display window is located.

1 5. (Original) The method of claim 1, wherein calculating the audio
2 source location involves using the location of the display window to calculate
3 coordinates for the audio source location so that audio from the audio source
4 location appears to originate at the location of the display window.

1 6. (Original) The method of claim 1, wherein intercepting
2 information about audio use involves inserting wrapper code around an audio
3 application programming interface (API) to intercept calls to the audio API.

1 7. (Original) The method of claim 6, wherein the audio API routes
2 intercepted audio information to a three-dimensional window manager.

1 8. (Original) The method of claim 7, wherein the three-dimensional
2 window manager manipulates the audio information to position an apparent audio
3 location prior to sending the audio information to code underlying the audio API.

1 9. (Original) The method of claim 1, further comprising reducing
2 audio volume of other applications when a given application is issuing a request
3 for a warning tone, wherein reducing audio volume of other applications causes
4 the warning tone from the given application to be predominant.

1 10. (Original) The method of claim 1, wherein when a given
2 application is issuing a request for user attention or the three-dimensional window

3 manager decides to get the user's attention to a certain application running in the
4 three-dimensional window, the method further comprises applying spatial audio
5 effects to the audio that the application is generating, wherein the spatial effects
6 include panning the audio source location in the three-dimensional space left and
7 right repeatedly and rapidly.

1 11. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for generating spatialized audio from non-three-dimensionally aware
4 applications, the method comprising:

5 intercepting information about audio use from an application, wherein the
6 application does not include support for three-dimensional sound;

7 using the intercepted parameters to obtain location information of a
8 display window associated with the application within a three-dimensional
9 display;

10 calculating an audio source location for the audio; and

11 positioning the audio at the audio source location in a three-dimensional
12 sound space, wherein the audio source location is associated with a location of the
13 display window in the three-dimensional display.

1 12. (Original) The computer-readable storage medium of claim 11,
2 wherein intercepting information about audio use involves intercepting an audio
3 stream from the application.

1 13. (Original) The computer-readable storage medium of claim 11,
2 wherein intercepting parameters associated with audio use involves intercepting
3 information about an audio stream from the application.

1 14. (Original) The computer-readable storage medium of claim 11,
2 wherein obtaining location information of the display window associated with the
3 application involves determining a set of coordinates on the three-dimensional
4 display where the display window is located.

1 15. (Original) The computer-readable storage medium of claim 11,
2 wherein calculating the audio source location involves using the location of the
3 display window to calculate coordinates for the audio source location so that
4 audio from the audio source location appears to originate at the location of the
5 display window.

1 16. (Original) The computer-readable storage medium of claim 11,
2 wherein intercepting information about audio use involves inserting wrapper code
3 around an audio application programming interface (API) to intercept calls to the
4 audio API.

1 17. (Original) The computer-readable storage medium of claim 16,
2 wherein the audio API routes intercepted audio information to a three-dimensional
3 window manager.

1 18. (Original) The computer-readable storage medium of claim 17,
2 wherein the three-dimensional window manager manipulates the audio
3 information to position an apparent audio location prior to sending the audio
4 information to code underlying the audio API.

1 19. (Original) The computer-readable storage medium of claim 11, the
2 method further comprising reducing audio volume of other applications when a
3 given application is issuing a request for a warning tone, wherein reducing audio

4 volume of other applications causes the warning tone from the given application
5 to be predominant.

1 20. (Original) The computer-readable storage medium of claim 11,
2 wherein when a given application is issuing a request for user attention or the
3 three-dimensional window manager decides to get the user's attention to a certain
4 application running in the three-dimensional window, the method further
5 comprises applying spatial audio effects to the audio that the application is
6 generating, wherein the spatial effects include panning the audio source location
7 in the three-dimensional space left and right repeatedly and rapidly..

1 21. (Currently amended) An apparatus, for generating spatialized audio
2 from non-three-dimensionally aware applications, comprising:
3 an intercepting mechanism configured to intercept parameters associated
4 with audio use from an application, wherein the application does not include
5 support for three-dimensional sound;
6 a location obtaining mechanism configured to use the intercepted
7 parameters to obtain location information of a display window associated with the
8 application within a three-dimensional display;
9 a calculating mechanism configured to calculate an audio source location
10 for the audio; and
11 a positioning mechanism configured to position the audio at the audio
12 source location in a three-dimensional sound space, wherein the audio source
13 location is associated with a location of the display window in the three-
14 dimensional display.

1 22. (Original) The apparatus of claim 21, wherein intercepting
2 information about audio use involves intercepting an audio stream from the
3 application.

1 23. (Original) The apparatus of claim 21, wherein intercepting
2 information about audio use involves intercepting parameters associated with an
3 audio stream from the application.

1 24. (Original) The apparatus of claim 21, wherein obtaining location
2 information of the display window associated with the application involves
3 determining a set of coordinates on the three-dimensional display where the
4 display window is located.

1 25. (Original) The apparatus of claim 21, wherein calculating the audio
2 source location involves using the location of the display window to calculate
3 coordinates for the audio source location so that audio from the audio source
4 location appears to originate at the location of the display window.

1 26. (Original) The apparatus of claim 21, wherein intercepting
2 information about audio use involves inserting wrapper code around an audio
3 application programming interface (API) to intercept calls to the audio API.

1 27. (Original) The apparatus of claim 26, wherein the audio API routes
2 intercepted audio information to a three-dimensional window manager.

1 28. (Original) The apparatus of claim 27, wherein the three-
2 dimensional window manager manipulates the audio information to position an

3 apparent audio location prior to sending the audio information to code underlying
4 the audio API.

1 29. (Original) The apparatus of claim 21, further comprising an
2 volume reducing mechanism configured to reduce the audio volume of other
3 applications when a given application is issuing a request for a warning tone,
4 wherein reducing audio volume of other applications causes the warning tone
5 from the given application to be predominant.

1 30. (Original) The apparatus of claim 21, wherein the positioning
2 mechanism is further configured to apply spatial audio effects to the audio that the
3 application is generating when a given application is issuing a request for user
4 attention or the three-dimensional window manager decides to get the user's
5 attention to a certain application running in the three-dimensional window,
6 wherein the spatial effects include panning the audio source location in the three-
7 dimensional space left and right repeatedly and rapidly.